

10/554,148

1-14. (CANCELED)

15. (CURRENTLY AMENDED) A ~~flexible dental instrument for use in drilling a root canal~~ ~~specifically a flexible drilling instrument, and the dental instrument being designed to be mechanically driven by an electric motor, the dental instrument~~ (10) comprising:

an end section (11) ~~to be mounted for mounting~~ in a chuck driven by said electric motor,

a proximal region (14) adjacent to said end section (11),

a central region (13) extending from said proximal region, and

a distal region (12) extending from said central region (13) for guiding the instrument through the root canal, and

an envelope (20), comprising the proximal region, the central region and the distal region ~~the~~, has a generally inverted cone shape, with a widest portion of the envelope (20) corresponding to the distal region (12) and a smallest portion of the envelope (20) corresponding to the proximal region (14),

wherein the dental instrument further comprises a junction region (17), located between the proximal region (14) and the end section (11), and the junction region (17) comprises an area of the envelope (20) which is designed to break in the event that a predetermined drive torque is applied to the envelope (20) during use of the dental instrument.

16. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein the envelope (20) has a truncated cone shape and comprises a vortex angle (Φ) that is identical along its entire length.

17. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein the envelope (20) consists of several juxtaposed sections (C, D, E, F) extending axially from one another, each of said sections having a truncated cone shape and each of said truncated cones comprising a different vortex angle (Φ_1 , Φ_2 , Φ_3 , and Φ_4), with a widest vortex angle (Φ_1) corresponding to the distal region (12), a smallest vortex angle (Φ_4) corresponding to the proximal region (14), and one or more at least one intermediate vortex angles (Φ_2 , Φ_3) corresponding to the central region (13).

18. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein an angle of the envelope (20) relative to an axis of the dental instrument decreases progressively and regularly from the distal region (12) to the proximal region (14).

19. (CANCELED)

2/8/2008 4:21:15 pm

- 2 -

10/554,148

20. (CURRENTLY AMENDED) The dental instrument according to claim [[19]] 15, wherein the area of the envelope (20) which is designed to break ~~partial break~~ consists of a ~~portion of~~ reduced section adjacent the proximal region (14) of the envelope (20).

21. (CURRENTLY AMENDED) The dental instrument according to claim [[19]] 15, wherein the area of the envelope (20) which is designed to break ~~partial break~~ consists of a modification in one or more of type and structure of material used for the dental instrument.

22. (CURRENTLY AMENDED) The dental instrument according to claim [[19]] 15, wherein the area of the envelope (20) which is designed to break ~~partial break~~ consists of at least one peripheral notch (18) formed in said junction region (17).

23. (CURRENTLY AMENDED) The dental instrument according to claim [[19]] 15, wherein the predetermined drive torque corresponds to a torque at which the distal region of the dental instrument breaks.

24. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein the distal region (12) comprises a rounded tip.

25. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein the central region (13) is polygonal and comprises hollowed flutes (16) with sharp cutting edges that are generally helical.

26. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein the central region (13) is polygonal and comprises flutes (16) with blunt edges that are generally helical.

27. (CANCELED)

28. (CURRENTLY AMENDED) The dental instrument according to claim 15, wherein the central region (13) comprises helical sections (16a) and rectilinear sections (16b).

29. (NEW) A flexible dental instrument for drilling a root canal, the dental instrument being manufactured from titanium-nickel and being designed to be mechanically driven by an electric motor, the dental instrument (10) comprising:
an end section (11) to be mounted in a chuck of an electric motor;
a proximal region (14) adjacent to the end section (11);
a central region (13) extending from the proximal region; and
a distal region (12) extending from the central region (13) for guiding the dental instrument through the root canal, and the distal region (12) terminating in a rounded tip;

20/08 -12:13 pm

- 3 -

10/554,148

an envelope (20) comprising the proximal region, the central region and the distal region and the envelope (20) having a generally inverted cone shape, with a widest portion of the envelope (20) corresponding to the distal region (12) and a smallest portion corresponding to the proximal region (14);

wherein the dental instrument further comprises a junction region (17), located between the proximal region (14) and the end section (11), and the junction region (17) comprises an area of the envelope (20) which is designed to break when a predetermined drive torque is applied to the envelope (20).

30. (NEW) A flexible root canal dental instrument for drilling a root canal, the dental instrument being manufactured from titanium-nickel and being designed to be mechanically driven by an electric motor, the dental instrument (10) comprising:

an end section (11) to be mounted in a chuck of an electric motor;

a proximal region (14) adjacent to the end section (11);

a central region (13) extending from the proximal region; and

a distal region (12) extending from the central region (13) for guiding the dental instrument through the root canal, and the distal region (12) terminating in a rounded tip which, during use, guides the dental instrument and minimizes the possibility of the dental instrument becoming embedded in a canal wall of a tooth;

an envelope (20) comprising the proximal region, the central region and the distal region and the envelope (20) having a generally inverted cone shape, with a widest portion of the envelope (20) corresponding to the distal region (12) and a smallest portion corresponding to the proximal region (14);

wherein the dental instrument further comprises a junction region (17), located between the proximal region (14) and the end section (11), and the junction region (17) comprises an area of the envelope (20) which is designed to break when a predetermined drive torque is applied to the envelope (20) and the vertex angle is constant along the entire length of the envelope (20).

31. (NEW) The dental instrument according to claim 30, wherein the predetermined drive torque corresponds to a torque at which the distal region of the dental instrument breaks.